

**Listing of Claims**

1. (Currently Amended) An X-ray source comprising:
  - an electron source (1) for the emission of electrons (E),
  - a target (4) for the emission of characteristic, substantially monochromatic X-rays (C) in response to the incidence of the electrons (E), said target (4) comprising a metal foil (5) of a thickness of less than 10µm and a base arrangement (7, 12) for carrying said metal foil (4), wherein the metal of said metal foil (5) has a high atomic number allowing the generation of X-rays (C) and the material substantially included in the base arrangement (7, 12) has a low atomic number not allowing the generation of X-rays (C), and
  - an outcoupling means (11) for outcoupling the X-rays (C) on the side of the metal foil (5) on which the electrons (E) are incident and which is opposite to the side of the base arrangement (7, 12).
2. (Currently Amended) AnThe X-ray source as claimed in claim 1, wherein said base arrangement comprises a rotatable base plate (12) of a material having an atomic number of less than 10, in particular in the range from 4 to 6.
3. (Currently Amended) AnThe X-ray source as claimed in claim 1, wherein said base arrangement comprises a cooling circuit (7) arranged to allow a coolant (8) to flow along the side of said metal foil (5) opposite to the side on which the electrons (E) are incident.
4. (Currently Amended) AnThe X-ray source as claimed in claim 3, wherein the coolant (8) has a mean atomic number of less than 10.
5. (Currently Amended) AnThe X-ray source as claimed in claim 3, wherein the coolant (8) is water.
6. (Currently Amended) AnThe X-ray source as claimed in claim 3, wherein said cooling circuit (7) comprises a constriction (10) in the area of the metal foil (5).

7. (Currently Amended) ~~An~~The X-ray source as claimed in claim 3, wherein said target (4) further comprises a carrier (6) of low atomic number material, in particular having a mean atomic number of less than 10, supporting the metal foil (5) on the side facing the coolant-(8).

8. (Currently Amended) ~~An~~The X-ray source as claimed in claim 1, wherein the metal foil (5) has a thickness of less than 5 $\mu$ m, preferably between 1 and 3 $\mu$ m.

9. (Currently Amended) ~~An~~The X-ray source as claimed in claim 1, wherein the metal of said metal foil (5) has an atomic number between 40 and 80.

10. (Currently Amended) ~~An~~The X-ray source as claimed in claim 1, wherein said outcoupling means (11) is adapted to outcouple X-rays (C) at angles of an angular range from substantially 45° to 135°, in particular 70° to 110°, to the surface of the metal foil-(5).

11. (Currently Amended) ~~An~~The X-ray source as claimed in claim 1, wherein said outcoupling means (11) is adapted to outcouple X-rays (C) in a direction substantially antiparallel to the direction of incidence of said electrons-(E), in particular in a direction at an angle in the range from 150° to 210° to the direction of incidence of said electrons-(E).

12. (Currently Amended) ~~An~~The X-ray source as claimed in claim 1, wherein said electrons (E) are directed onto the surface of said metal foil (5) at a substantially 90° angle.

13. (Currently Amended) ~~An~~The X-ray source as claimed in claim 1, wherein said electron source (1) is located outside the X-ray beam (C) to be outcoupled, said X-ray source further comprising means (2) for directing the electron beam (E) onto the metal foil (5).

14. (Currently Amended) A target for use in an X-ray source for the generation of characteristic, substantially monochromatic X-rays (C) in response to the incidence of electrons (E), said target (4) comprising a metal foil (5) of a thickness of less than 10 $\mu$ m and a base arrangement (7, 12) for carrying said metal foil (5), wherein the metal of said metal foil (5) has a high atomic number allowing the generation of X-rays (C) and the material substantially included in the base arrangement (7, 12) has a low atomic number not allowing the generation of X-rays (C).

15. (New) An x-ray source comprising:

an electron source for the emission of electrons, and  
a target for the emission of substantially monochromatic x-rays in response  
to the incidence of the electrons, said target comprising a metal foil and base arrangement,  
said metal foil allowing the generation of x-rays and the base member not allowing the  
generation of x-rays.

16. (New) The x-ray source as claimed in claim 15, wherein said base arrangement  
comprises a cooling circuit to allow a coolant to flow along the side of said metal foil  
opposite to the side on which the electrons are incident.

17. (New) The x-ray source as claimed in claim 16, wherein the coolant is water.

18. (New) The x-ray source as claimed in claim 16, wherein said cooling circuit  
comprises a constriction proximate the metal foil.